DECISION ON THE NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT

In accordance with s. 1.11, Wis. Stats., and Chapter NR 150, Wis. Adm. Code, the Department is required to comply with s. 1.11 with respect to a rule-making action.

The attached analysis of Proposed NR 446, Wis. Adm. Code pertaining to Control of Atmospheric Deposition of Mercury Emissions is of sufficient scope and detail to conclude that this is not a major action which would significantly affect the quality of the human environment. An environmental impact statement is not required prior to final action by the Department to adopt this rule. This determination was made considering the attached analysis and the following factors:

Environmental Effects
Proposed NR 446, Wis. Adm. Code, Control of Atmospheric Deposition of Mercury Emissions, would reduce mercury emissions from major electric utilities. The reduction of mercury air emissions is expected to have the effect of reducing atmospheric mercury deposition to the environment and ultimately, mercury concentrations in fish and wildlife.

Cumulative Effects
There are no known locally related actions or other activities that would compound the effects of proposed NR 446. There is currently a federal activity to promulgate regulations to control mercury emissions from coal and oil (fossil fuels) fired electric utility plants. This federal activity is the result of the USEPA's determination in December 2000 that mercury emissions from coal and oil-fired electric utility plants need to be regulated. The USEPA is under a schedule to propose regulations by December 15, 2003 and issue final rules by December 15, 2004. Proposed NR 446 includes a requirement for the Department to evaluate federal regulatory activity and make recommendations to revise the rule as needed.

Risk or Uncertainty
There is some uncertainty regarding the environmental impacts of Proposed NR 446. It is not completely known how many or exactly which water bodies in the state would show a reduction in mercury levels with a corresponding reduction of fish advisories as a result of reducing, mercury air emissions from major stationary sources located in Wisconsin. It is also not completely known how many years would be required for any particular water body in the state to fully recover from mercury contamination as a result of reducing, mercury air emissions from major stationary sources in the state. However, since any amount of reduction of mercury to the state's water bodies would be a positive environmental outcome, these uncertainties associated with Proposed NR 446 are not deemed to have a significant negative impact to public health and safety.

Precedent
NR 446 may encourage and support future actions by other states to promulgate regulations to reduce mercury emissions from electric utilities and other sources of mercury. NR 446 may also assist in development of federal rules to regulate mercury emissions from coal and oil-fired electric utility plants. USEPA is under a schedule to propose rules regulating mercury emissions from utility boilers by December 15, 2003, and promulgate final regulations by December 15, 2004. Regulations to reduce mercury air emissions from other states either through federal regulations or through state regulations would be beneficial to Wisconsin since a portion of mercury deposited to the state is from sources located outside of Wisconsin.

Controversy
There is some controversy over the uncertainty of NR 446 on the quality of the human environment. This controversy relates to the impacts that would occur to water bodies in the state as a result of reductions of mercury air emissions from major electrical utilities. Opponents of NR 446 may argue that reducing mercury air emissions from major electrical utilities located in Wisconsin will have no significant impact on reducing mercury in water bodies located in the state and eliminating fish consumption advisories.

Others may argue that the proposed rule does not reduce mercury emissions soon enough or that it does not require reductions from all sources of atmospheric mercury. The Department believes that because of the bioaccumulative properties of mercury, reducing mercury air emissions from major electrical utilities in the state would over time, reduce mercury to the state's environment. The Department further believes that the proposed rule is a balanced approach for regulating air emissions of mercury based on currently available control technology. Periodic review opportunities within the rule would allow for assessments and further adjustments of regulations as needed.

_____ _____

Evaluator Date

_____ _____

Bureau Director Date

Certified to be in compliance with WEPA*

_____ _____

Director, Integrated Science Services (or designee) Date

* If you believe you have a right to challenge this decision, you should know that Wisconsin Statutes and administrative rules establish time periods within which requests to review department decisions must be filed.

For judicial review of a decision pursuant to ss. 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of natural resources as the respondent.

This notice is provided pursuant to s. 227.48(2), Wis. Stats.

II. HISTORY AND BACKGROUND

Summarize the history of the proposed rule or legislation and explain why the proposal was developed. Identify Department programs, outside individuals and groups contacted in the development of this proposal. Describe how these groups were involved and summarize any key concerns that remain.

If this proposal is part of a larger effort that involves other rule or legislative proposals that are being processed separately, describe the overall effort and list the related activities.

The Department of Natural Resources is proposing administrative rules under s. 285.11(9), Wis. Stats., to reduce mercury emissions to the air from major electric utilities. The Department believes that emissions of mercury to the air from major electric utilities significantly contribute to mercury entering water bodies and ultimately fish and wildlife. The Department believes that atmospheric mercury deposition has contaminated nearly all of the state's water bodies to some level resulting in a statewide fish consumption advisory.

At the Natural Resources Board meeting conducted on December 6, 2000, the Department presented a resolution to the Board requesting and receiving authority to draft rules to regulate atmospheric emissions of mercury (see attached Resolution). The Board instructed the Department to return in March 2001 (subsequently postponed until June 2001) with proposed rules that protect public health and the environment, but are cost-effective, reasonable, and do not interfere with the ability of electric utilities to supply the state's energy needs.

Proposed rules to reduce mercury emissions were presented to the Natural Resources Board at their June 2001 meeting in Kenosha at which time the Board authorized public hearings for the rules. An Environmental Assessment of the proposed rule was released for public review and comment during June 2001. During the last week of September and first week of October 2001, the Department conducted five public hearings throughout the state. In conjunction with the Natural Resources Board's action, the Secretary of the Department requested the Bureau of Air Management to form a Citizen Advisory Committee and a Technical Advisory Group to advise the Secretary on revisions to the proposed rules. The Citizen Advisory Committee's report was completed on September 23, 2002. The proposed rules have been revised based on public comments and the recommendations of the Citizens Advisory Committee and Technical Advisory Group. This document is a revision of the 2001 Environmental Assessment and analyzes the environmental effects of the revised rule proposal.

The proposed rules are currently not part of any larger efforts involving a rule or legislative proposal. Development of the proposed rules is with authorization of the Natural Resources Board and is under s. 285.11(9), Wis. Stats., which directs the Department to: *"prepare and adopt minimum standards for the emission of mercury compounds or metallic mercury in the air."* Development of the rules is by the Air Management program.

A. Petition

On May 18, 2000, a petition was submitted by Wisconsin's Environmental Decade and others to the Department of Natural Resources and Natural Resources Board to adopt administrative rules under s. 285.11(9), Wis. Stats., requiring reductions in mercury emissions from the largest known sources of emissions. The petition was signed by several members of the legislature in addition to representatives of environmental organizations, conservation groups, and sporting clubs. It requested the adoption of rules to control mercury deposition to Wisconsin's lakes and rivers because of the current large number of fish consumption advisories. The main provision of the petition included a 90% reduction of mercury air emissions by the year 2015. Subsequently, on September 15, 2000, the Department received an amended petition that changed the main provision from 90% reduction in mercury air emissions by the year 2015 to the same 90% reduction level by the year 2010. It also added to the number of petitioners (see attached May 18, 2000 Petition and September 15, 2000 Amended Petition).

In addition to the 90% reduction in mercury air emissions, the amended petition also requests the following provisions:

a) Creation of a comprehensive program within DNR to address mercury.
b) Appointment of a mercury control council.
c) Requirement for determining baseline mercury emission levels.
d) Establishing mercury emissions cap on 1999 emissions.
e) Possible interim emission reduction requirements including 25% by the year 2006.
f) Fines and other disincentives.
g) Opportunity for two year variance.

The amended petition was presented as an informational item by the Department during the Natural Resources Board meeting conducted on September 27, 2000.

B. Mercury Issue

The Department of Natural Resources recognizes mercury as an environmental pollutant and a potential hazard to human health and wildlife. The Department is concerned about mercury because the pollutant has unique properties that allow it to persist in the environment and bioaccumulate in terrestrial and aquatic system food chains. This bioaccumulation problem poses a human health risk for people that consume mercury-contaminated fish. Mercury is a potent neurotoxin that crosses both the blood-brain and placental barriers. Children and developing fetuses are most at risk from the effects of mercury exposure. USEPA has determined that children born to women with blood concentrations above 5.8 parts per billion are at some increased risk of adverse health effects. About 8 percent of women of child-bearing age had at least 5.8 parts per billion of mercury in their blood in 1999 – 2000. Mercury also affects both fish-eating birds and mammals.

Mercury in the environment is the result of both natural and anthropogenic (man-made) activities. In the atmosphere it exists in three basic forms including elemental mercury vapor, particle bound mercury, and reactive gaseous mercury. It is cyclic in nature and the different forms all exhibit different transport characteristics. Depending on source parameters and meteorological conditions, mercury may be emitted and deposited back to earth on a local, regional, or global scale.

Since the 1970's, the Department has been monitoring mercury in the environment including the sampling of fish tissue for mercury. The Department has sampled 1200 water bodies and has found mercury in fish in all water bodies tested using a newly adopted 0.05 part per million in fish tissue standard (the Department announced the new standard on February 28, 2001). The high levels of mercury pose potential health risks to people and wildlife that consume fish. As a result, health advisories have been established restricting the human consumption of fish from nearly all water bodies in the state.

In addition to the health risks caused by elevated levels of mercury in the environment, the Department is also concerned with the important economic consequences associated with a potential reduction of recreation and tourism activities. Each year the Department sells approximately 1.5 million fishing licenses (1 million are residents) generating approximately $1.1 billion in expenditures to the state. Adding to license sales is the significant revenue provided by sales of food, lodging, gasoline, and sporting equipment related to fishing as an activity with a total yearly economic impact of approximately $2.1 billion statewide. The sport fishing industry accounts for approximately 30,500 jobs in the state each year. Based on data from the American Sportfishing Association, Wisconsin ranked 6th among states in 2001 in overall economic output (more than $2.3 billion) from fishing. Although there is no data to suggest a decrease in fishing license sales, the Department is concerned that the continual listing of fish consumption advisories because of elevated levels of mercury could cause a corresponding decrease in recreation and tourism and have a direct economic impact on the state.

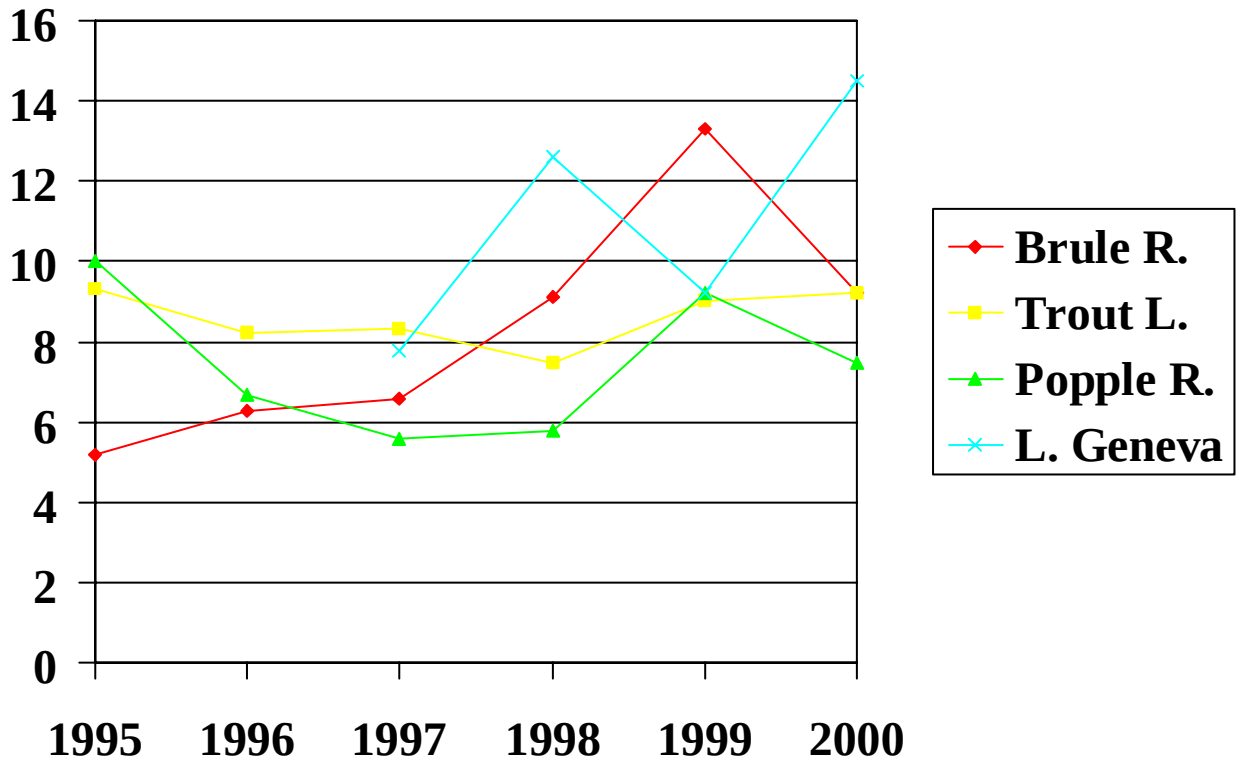
Significant progress has been made in reducing the direct discharge of mercury to the waters by industrial and municipal sources. The Department believes that much of the mercury now entering the waters of Wisconsin is the result of atmospheric deposition. Currently, the Department operates 6 monitoring stations

that measure mercury in wet deposition or in other words, mercury that is deposited as a result of precipitation (rain or snow). The 6 sites are part of the national Mercury Deposition Network and are located at Brule River, Trout Lake, and Popple River in the northern part of the state, and Lake Geneva, Devil's Lake, and Milwaukee in the southern part of the state. Monitoring data for 1995 through 2000 are listed in Chart 1 below for the Brule River, Trout Lake, Popple River, and Lake Geneva sites (Devil's Lake and Milwaukee were not yet operational in 2000). The dry deposition of mercury is poorly understood at this time.

Chart 1

Mercury Wet Deposition in Wisconsin

ug/m2/yr



Source: Wisconsin Department of Natural Resources

One of the largest sources of mercury emissions in the state is fossil fuel-fired boilers used to generate electricity since coal and oil contain significant amounts of naturally occurring mercury that is released to the air when these materials are combusted (see Table 1: Estimated Mercury Emission In Wisconsin). Chlor-alkali production (manufacture of chlorine and caustic soda) and waste incineration are also large sources of mercury emissions. Mercury released to the air can be deposited locally (very near the source) or can travel longer distances to be deposited within the Great Lakes region or on a national or global scale.

TABLE 1: ESTIMATED MERCURY AIR EMISSIONS IN WISCONSIN (Pounds)

	WI 1990	WI 1995
Incidental to Energy Production		
Coal (total)	(2,361)	(2,508)
electric utility coal	1,967	2,088
commercial/industrial coal	391	417
residential coal	3	3
Petroleum Sector (including refining & combustion of products)	580	509
Wood	13	10
Natural gas	0.24	0.3
Refuse Derived Fuel - Utility	11	9
Gasoline & Diesel - Mobile Sources	223	231
Tire Derived Fuel – Utility	6	12
Subtotal Incidental to Energy Production	**3,188**	**3,268**
% of total state emissions	**40%**	**50%**
Largely Resulting from the Purposeful Use of Mercury		
Latex Paint Volatilization	500	10
Municipal Solid Waste Combustion	1,041	176
On-site Household Waste Incineration	666	270
Medical Waste Combustion	363	601
Sewage Sludge Incineration	166	166
Fluorescent Lamp Breakage	107	107
Class IV Incinerators	55	0
Chlor-alkali Production	1,072	1,114
Battery Production	4	2
Electrical Apparatus & Instrument Manufacturing	37	37
Crematories	36	38
General Laboratory Use	56	42
Dental Preparation	56	28
Hazardous Waste Incineration	0	0
Landfill Volatilization	13	13
Recycling Mercury from Products within WI	4	35
Smelters that Recycle Cars & Appliances	69	69
Volatilization from Dissipative Use	2	2
Fungicide Volatilization	86	25
Volatilization from Spills & Land dumping	55	48
Volatilization during SW Collection & Processing	258	258
Volatilization: Land Application of Compost	2	1
Volatilization: Land Application of Sludge	126	126
Subtotal: Purposeful Use of Mercury	**4,774**	**3,168**
% of total state emissions	**59%**	**48%**
Emissions Incidental to other Activities		
Taconite Processing	0	0
Pulp & Paper Manufacturing	4	4
Soil Roasting	12	12
Lime Production	92	128
Subtotal: Emissions Incidental to other Activities	**108**	**144**
% of total state emissions	**1%**	**2%**
GRAND TOTAL =	**8,069**	**6,580**

Source: Bureau of Air Management, Wisconsin Department of Natural Resources

As required by Section 303(d) of the Clean Water Act, the Department identified and submitted to the USEPA, a list of water bodies currently not meeting water quality standards. Many of these water bodies (as determined from the fish advisory list) are impaired by atmospheric deposition of mercury. The USEPA has established an 8 – 13 year time frame to address the listed water bodies with a plan to remove existing impairments through appropriate Total Maximum Daily Loads (TMDLs). To address the requirements of Section 303(d) of the Clean Water Act, the Department must establish TMDL's for water bodies impaired by atmospheric deposition.

The Department does not believe that current state regulations are sufficient to reduce atmospheric deposition and bioaccumulation of mercury to Wisconsin's environment. Emissions from the chlor-alkali facility and waste combustion are currently regulated under state-adopted federal standards. However, there are no federal rules regulating mercury air emissions from electric utility power plants. The Department does regulate mercury air emissions under NR 445, Wis. Admin. Code, however, emission limits are based on protecting the public from unacceptable mercury exposure due to direct inhalation of mercury. The regulation does not address the bioaccumulative properties of mercury. NR 445 also exempts emissions, including mercury, from the combustion of virgin fossil fuels.

C. Department Mercury Strategy

In response to its concern with mercury deposition and the associated large number of fish consumption advisories, the Department issued a draft White Paper on a mercury reduction strategy in January 1999. The purpose of the paper was to stimulate meaningful discussion and movement towards reductions in atmospheric mercury emissions in the state. The Department convened a stakeholders group of representatives from government, industry, and environmental organizations that met four times during the winter and spring of 1999.

In August 1999, the Department issued a final draft White Paper entitled *Recommended Strategy For Mercury Reductions To The Atmosphere In Wisconsin*. This final draft strategy includes consideration of comments and concerns from the stakeholders group. The final draft strategy recommended establishing a mercury cap, trading, banking and offset program for major sources (defined as at least 10 pounds of mercury emissions per year) that would achieve a 20% reduction in air emissions by 2005, a 35% reduction by 2010, and a 50% reduction by 2015. The draft strategy also recommended that the baseline used to calculate percentage reductions from major sources would be the average of their mercury emissions for 1997, 1998, and 1999. Significant stakeholder concerns regarding the strategy included the following:

- Need to promote more voluntary mercury reduction measures.
- The federal government should take the lead on mercury regulations.
- Trading between different sectors would promote local problems.
- TMDLs should not be used as a regulatory tool to justify mercury reductions.
- The cost of control is too high for the benefit.

D. Proposed Legislation

On May 25, 1999, Senator Brian Burke (D-Milwaukee) and Representative Dean Kaufert (R-Neenah), introduced Senate Bill 177 (SB 177). The bill would regulate mercury emissions to the air from certain stationary sources, provide revenue and an appropriation for research related to mercury emissions, establish a mercury emission allowance and trading system, and directed the Department to complete certain reports. Mercury air emissions would be capped in the year 2000 and sources would be required to reduce emissions by 15%, 30% and 50% by the years 2005, 2010 and 2015 respectively. It was referred to the Senate Committee on Agriculture, Environmental Resources and Campaign Finance Reform. A public hearing was held on August 25, 1999, in Rhinelander, Wisconsin. Department Secretary George Meyer provided testimony before the senate Environmental Committee (see attached 8/25/99 Meyer testimony). On February 8, 2000, after a Senate amendment (Senate Amendment 1 to Senate Substitute Amendment 1) was adopted, the bill was adopted and referred to the Joint Committee on Finance.

A second amendment (Senate Substitute Amendment 2) with emission limits of 25% by 2005, 50% by 2010, and 60% by 2015, was adopted by the Joint Committee on Finance. The amendment also allowed for the Department to make adjustments of emission reduction requirements based on available control technology for minimum reductions of 15% by 2015 and 35% by 2010, and maximum reductions of 90% by 2015. However, Senate Bill 177 failed to be adopted by the Committee by a vote of 7 to 9.

E. Federal Determination

Section 112 of the Clean Air Act (CAA) requires the USEPA to perform a study of toxic emissions from electric steam generating units and submit a report to Congress on the findings of the study. Section 112 of the CAA also requires USEPA to make a determination as to whether it is appropriate and necessary to control hazardous air pollutants from electric steam generating units based on the results of the utility study. USEPA issued the Utility Report to Congress in February 1998. In the report, the agency concluded that of all the toxic pollutants emitted by electric utility plants, mercury posed the greatest hazard to public health. An earlier 1997 USEPA study on mercury concluded that coal-fired power plants were the largest source (33 percent) of man-made mercury emissions in the country.

On December 14, 2000, the agency issued its determination that because of the risks to human health, mercury emissions from electric utility power plants must be reduced. The agency is now required to develop proposed regulations by December 15, 2003 and issue final rules by December 15, 2004. Currently, there are no federal regulations controlling mercury emissions from fossil fuel-fired boilers used to generate electricity.

F. Other Federal Proposals

Several bills have been introduced in Congress proposing mercury emission reductions and other pollutants from electric utility steam generating units including the President's Clear Skies Initiative and the Clean Power Act of 2003 introduced by Senator Jeffords and others. The Clear Skies Initiative proposes mercury reductions of 69 percent from 1999 levels by 2018. The Clean Power Act of 2003 proposes mercury reductions of 90 percent by 2008.

G. Other States

Forty-four states have some type of fish consumption advisory related to mercury contamination. A number of these states have initiated actions to reduce mercury emissions to the atmosphere from sources located within their respective state. These include:

Connecticut – In March 2003, a legislative proposal was presented to the Connecticut legislature that would require mercury emission reductions from coal-fired power plants. The proposal was jointly issued by the Connecticut Coalition for Clean Air, Clean Water Action, Clean Air Task Force, and PSEG Power Connecticut. It would require an emission standard of 0.6 pounds of mercury per trillion BTU (90% control efficiency) by 2008.

Maine – Enacted legislation in 1998 to limit mercury emissions by any source to 100 pounds per year by the year 2000 and 50 pounds per year by the year 2004.

Massachusetts – In 2001, the state passed the Emission Standards for Power Plants regulation requiring the state's power plants to reduce their emissions of four pollutants including mercury. Plant owners were required to stack test for mercury emissions with their emissions capped based on annual averages. In December 2002, the Department of Environmental Protection issued a technological and economic feasibility study of mercury emission reductions. The Department believes that the removal of 85–90+% of mercury in the flue gas has been demonstrated to be technologically and economically feasible. The Department is required to propose mercury emission standards in 2003 that power plants will need to meet by October 1, 2006.

Michigan – Initiated an active stakeholder forum discussing strategic issues regarding mercury reductions. The Michigan Mercury Action Plan Task Force released a report on mercury pollution in 1997. The report recognized the need to reduce mercury emissions from coal-fired power plants although it did not make any recommendations on the level of emission reductions.

Minnesota – In 1999, Minnesota passed a mercury reduction law that included establishment of an Advisory Council. The Minnesota Pollution Control Agency is currently implementing the Advisory Council's recommendation for a 70% reduction in mercury emissions from 1990 levels by 2005. Minnesota's mercury reduction initiative is an industry voluntary program approved by the state legislature.

New Hampshire – In January 2001, the Governor of New Hampshire announced a Clean Power Strategy that when implemented, will reduce emissions including mercury from fossil fuel power plants. The strategy calls for mercury reductions of 75% from 1990 levels. Legislators from both parties have agreed to sponsor the New Hampshire Clean Power Act, legislation to implement the strategy.

New Jersey – In January 2002, the state's Mercury Task Force released a report that recommends a reduction from 2001 mercury emissions of 50 percent by 2006 and a 65 percent by 2011. The report recommends that these reductions come from increased use of pollution control technologies by power plants and an increased use of other forms of power production.

North Carolina – The North Carolina Scientific Advisory Board released a report "Mercury in the Environment" in 2000. The report expresses concerns with mercury emissions from power plants although it did not make any recommendations on mercury reductions. The Clean Smokestacks Bill, passed in June 2002, requires the North Carolina Department of Environment and Natural Resources to continue to evaluate mercury pollution issues and make recommendations and standards on the control of mercury emissions.

Oregon – The Oregon Department of Environmental Quality released a Mercury Reduction Strategy in November 2002. The report recommends a reduction in all mercury releases from 2001 emissions of 50 percent by 2006 and 75 percent by 2011.

Vermont – An Advisory Committee on Mercury Pollution was formed in 1998. The Committee is charged with examining the mercury risk in Vermont and methods of controlling mercury emissions and contamination.

Northeast – The Conference of New England Governors and Eastern Canadian Premiers signed a plan in May 1998 which establishes a regional goal of reducing mercury emissions by 50% by the year 2003 and a 75 percent reduction by 2010.

III. PROPOSAL DESCRIPTION

A. Objectives

Summarize what the proposal is supposed to accomplish by listing the environmental, administrative or other objectives of the proposal.

The Department proposes to require atmospheric mercury emission reductions from major electric utilities in the state. This requirement would be within Chapter NR 446 Wis. Adm. Code and adopted under s. 285.11(9), Wis. Stats. The objective of the proposed rule is to set limits on the emissions of mercury into the ambient air from electric utility sources as a means of reducing atmospheric mercury deposition to the environment and specifically to water bodies with fish consumption advisories. This would reduce the mercury concentrations in fish and wildlife that consume fish. Reducing the mercury concentration in fish will reduce the human health risk associated with that portion of the population that consumes fish. It will also reduce the potential negative economic impacts associated with fish consumption advisories

B. Key Studies / Assumptions / Policies

Identify and summarize any key studies, assumptions or policies that helped shape the proposal.

The proposed rule would reduce mercury air emissions from major electric utility sources with the purpose of reducing mercury contamination in the environment and the risk to human health and wildlife. The Department's position that mercury air emissions from major electric utilities needs to be reduced is based on the following:

- All of the 1200 water bodies tested in the state exceed the current 0.05 parts per million fish tissue standard for mercury. Nearly all of the water bodies in the state have some level of fish consumption advisory due to mercury contamination.

- Atmospheric deposition of mercury is the dominant pathway for mercury to enter the environment and ultimately into fish and other wildlife in Wisconsin.

- The largest unregulated source of mercury air emissions in the state is fossil fuel-fired boilers used to generate electricity.

- Mercury control technologies are or will be available in the near term to meet the reduction requirements in the proposed rule.

- The Department believes that although mercury air emissions from sources located outside the state contribute to mercury deposition in Wisconsin, in-state sources contribute to in-state deposition.

The foundation of the proposed rule is based on a number of comprehensive studies on the effects, sources and control of mercury emissions. They include the *Mercury Study Report to Congress* (December 1997), *Utility Air Toxics Report to Congress* (February 1998), *National Academy of Sciences Mercury Report* (July 2000) and NESCAUM (Northeast States for Coordinated Air Use Management) report *Environmental Regulation and Technology Innovation: Controlling Mercury Emissions from Coal-Fired Boilers* (September 2000).

The Clean Air Act required USEPA to study the public health effects of air toxic emissions from utilities that burn fossil fuels (coal, oil, and natural gas) and determine whether it is necessary to regulate those emissions. Based on this requirement, USEPA published the Mercury Study Report to Congress in 1997 and the Utility Air Toxics Report to Congress in 1998.

The Mercury Study Report is an assessment of the magnitude of mercury emissions by source, the health and environmental implications of those emissions, and the availability and cost of control technologies. The report identifies fossil fuel-fired power plants as the largest source of human-generated mercury emissions in the country accounting for 33 percent of the total anthropogenic (man-made) emissions. Using computer modeling of the transport of mercury air emissions, the report estimates that in general, 7-45 percent of the total mercury emitted by a source is predicted to deposit within 31 miles of the source.

The Utility Air Toxics Report examined emissions from power plants and provides information on the emission, fate, and transport of hazardous air pollutants (HAPs). Primary components of the report include a description of the industry, analysis of emissions data, assessment of hazards and risks associated with HAPs, discussion of alternative control technologies. The report identified mercury as the toxic of greatest concern from electric utility power plants.

In addition, USEPA gathered additional data from electric utility power plants and used the data to estimate 1999 nationwide, state, and plant-by-plant mercury emissions. The data confirm that coal-fired power plants are the largest source of man-made mercury emission in the U.S. at about 43 tons of mercury each year. Based on USEPA's estimates, coal-fired electric utility power plants located in Wisconsin (see Figure 1) released approximately 1,969 pounds of mercury in 1999. Based on emission estimates submitted by

industry sources to the Department under NR 438 Wis. Admin. Code, Reporting Requirements, electric utility power plants in Wisconsin emitted an average of 2,120 pounds of mercury for 1999 through 2001 (see Table 2).

Table 2

Average 1999 – 2001 Mercury Emissions For Electric Utility Plants Based On Information Submitted to the DNR under NR 438 Reporting Requirements

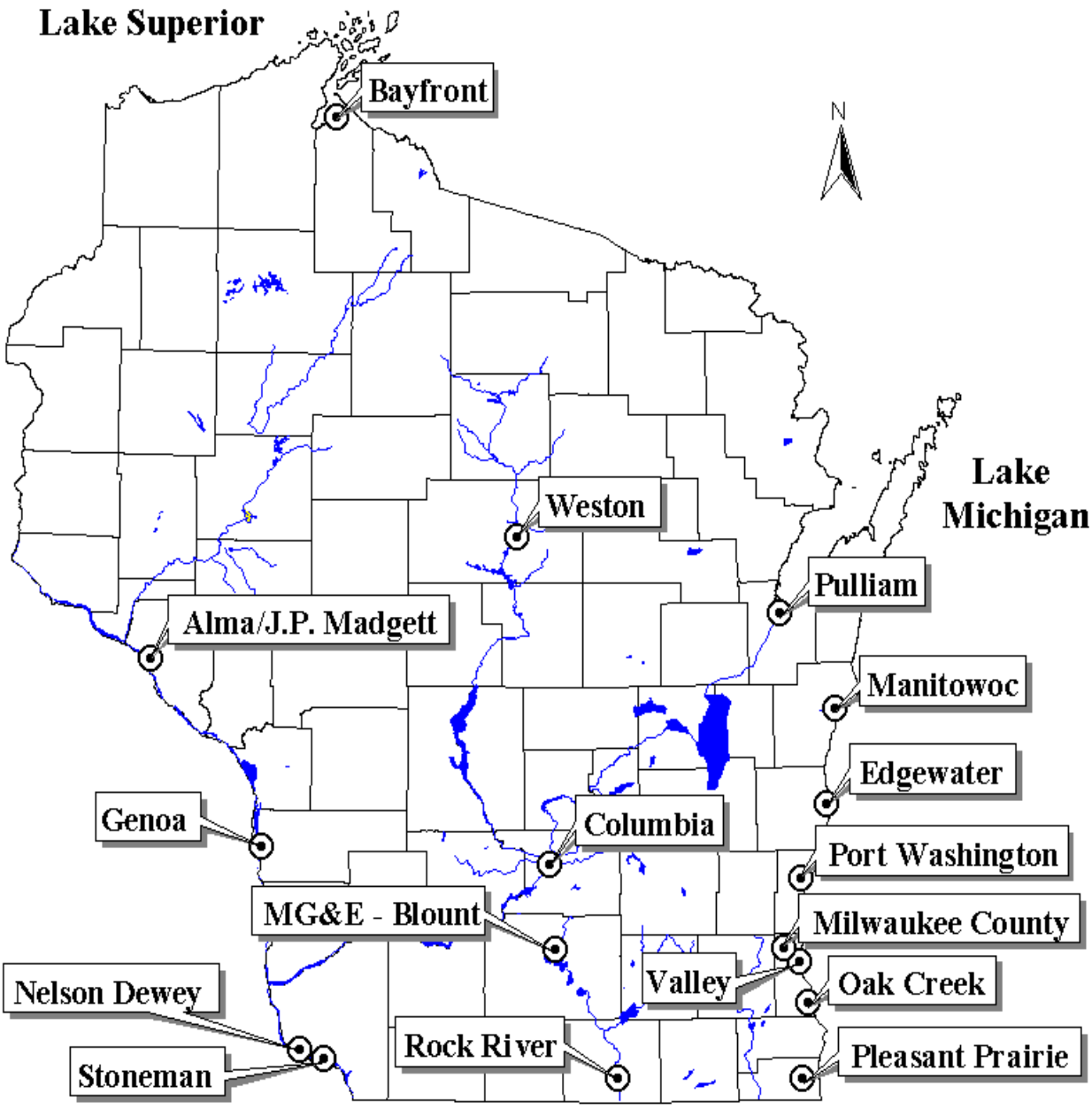
Facility Name	County	Mercury Emissions lbs/yr
ALLIANT ENERGY – COLUMBIA	COLUMBIA	518
ALLIANT ENERGY – EDGEWATER	SHEBOYGAN	219
ALLIANT ENERGY – NELSON DEWEY	GRANT	72
ALLIANT ENERGY – ROCK RIVER	ROCK	8
DAIRYLAND POWER COOP – ALMA / J.P. MADGETT	BUFFALO	106
DAIRYLAND POWER COOP – GENOA	VERNON	54
MADISON GAS & ELECTRIC CO – BLOUNT STREET	DANE	10
MANITOWOC PUBLIC UTILITIES	MANITOWOC	101
MID-AMERICAN – STONEMAN	GRANT	0
NORTHERN STATES POWER (XCEL) – BAY FRONT	ASHLAND	4
WI PUBLIC SERVICE CORP – PULLIAM	BROWN	73
WI PUBLIC SERVICE CORP – WESTON	MARATHON	115
WIS ELECTRIC POWER - OAK CREEK	MILWAUKEE	156
WIS ELECTRIC POWER – PLEASANT PRAIRIE	KENOSHA	599
WIS ELECTRIC POWER – PORT WASHINGTON	OZAUKEE	49
WIS ELECTRIC POWER – VALLEY	MILWAUKEE	34
WIS ELECTRIC POWER – MILWAUKEE COUNTY	MILWAUKEE	2
		2,120

Source: Wisconsin Department of Natural Resources, Bureau of Air Management

USEPA also provided funding for the National Academy of Sciences (NAS) to review the health effects data associated with methylmercury and the agency's "reference dose" for mercury. In its report, issued in July 2000, the NAS affirmed that USEPA's reference dose (the level at which most people could be exposed without the risk of health problems) of 0.1 micrograms of methylmercury per kilogram of body weight per day is scientifically justifiable. On February 28, 2001, the Department announced its adoption of EPA's recommended reference dose that translates to a 0.05 parts per million fish tissue sample for mercury standard. Based on Department calculations, all 1200 water bodies tested in Wisconsin exceed the new mercury standard and nearly all water bodies in the state have a fish consumption advisory due to mercury contamination.

Figure 1.

FOSSIL FUEL-FIRED ELECTRIC UTILITY PLANTS IN WISCONSIN



Source: Wisconsin Department of Natural Resources, Bureau of Air Management

C. Major Provisions

Summarize the major provisions of the proposal and identify key new requirements.

The following are the major provisions of the proposed rule. Requirements for major electric utilities apply on an in-state facility-wide basis and not on an individual plant basis. Please refer to the rule analysis for more specific detail on the requirements of the rule including a definition of major electric utility.

Mercury Baseline – By October 1, 2005, major electric utilities would be required to submit a report to the Department with the following information:

1. Average coal usage for the years 2002, 2003, and 2004.
2. Sample test results of the fuel mercury content from coal in 2004.
3. Results of emissions testing with the mercury capture efficiency of currently installed air pollution control equipment.

The results of coal usage and coal mercury content would be used to determine a mercury baseline for each major electric utility and will be the point from which mercury reductions will be required.

Mercury Emissions Cap – The emissions testing with current mercury control efficiency will be used along with the established mercury baseline to establish a mercury emissions cap for each major electric utility. Beginning January 1, 2008, major electric utilities would not be allowed to exceed their mercury emissions cap.

Compliance Plan - By October 1, 2007 and October 1, 2011, utilities would be required to submit a compliance plan to the Department with a proposal detailing how the utility intends to comply with the baseline emission reduction requirements in the rule.

Reduction Requirements – Major electric utilities would be required to achieve the following reductions in mercury emissions from baseline emissions by the following dates after rule promulgation:

1. By January 1, 2010 – 40% reduction.
2. By January 1, 2015 – 80 % reduction.

Compliance – Major electric utilities would be allowed to achieve compliance using a combination of control technology, fuel switching, efficiency in boiler operation, boiler shutdown, or emissions trading between major electric utilities.

Multi-pollutant Option – Major electric utilities would be allowed to pursue a multi-pollutant reduction approach for mercury and other air pollutants.

Variances – In consultation with the Public Service Commission, the Department would be allowed to grant variances to major electric utilities based on a demonstration that the technology or economic costs are not feasible.

Electric Reliability Waiver – A waiver from an annual mercury emission limitation may be approved if the cause of excess emissions is related to an issue of electric reliability. The Public Service Commission would be consulted and a 30-day public comment period with a hearing opportunity would be offered.

Evaluation Reports – The Department would be required to prepare a rule assessment report to the Natural Resources Board by January 1, 2009, taking into consideration electric reliability, scientific and technology developments, multi-pollutant reduction approaches, and federal regulatory activity. The report would include an evaluation of the feasibility of achieving the seven and twelve year reduction requirements and recommendations for corrective actions and rule revisions. The department would be required to update the report by January 1, 2013. In addition to these evaluation reports, the department would be required to

submit a report within six months of promulgation of federal regulations or enactment of a federal law that requires mercury reductions from sources affected by this rule.

New Sources – New sources with allowable mercury emissions of 10 pounds or more per year will be required to apply BACT (Best Available Control Technology).

Source Reporting – All sources with emissions of 10 pounds or more of mercury per year would be required to meet the measurement and reporting requirements of the rule.

D. Exemptions

Identify and explain any implicit or explicit exemptions provided by the proposal.

The proposed rule would regulate the four major electric utilities that emit 100 pounds or more of mercury by requiring them to reduce their air emissions of mercury (see Table 4). All other stationary sources of mercury that emit 10 pounds or more of mercury per year, including electric utility sources emitting less than 100 pounds of mercury per year, would be required to meet the measurement and reporting requirements of the rule. Other small sources emitting 10 pounds or more of mercury per year generally includes non-combustion sources, fossil fuel-fired boilers not used to generate electricity, and small manufacturing sources. These smaller sources are not proposed for emission reductions in the rule because they are small emitters of atmospheric mercury and the Department does not believe that controlling their mercury emissions would be practicable at this time. The waste incinerators and chlor-alkali facility are also not proposed for regulation in the rule because they are currently regulated under state-adopted federal standards.

IV. AFFECTED ENVIRONMENT

A. Physical and Biological Environment

Briefly describe the physical or biological environment affected by the proposal. For new proposals substantially affecting a particular region, also provide a location plan or map. For new or substantial statewide proposals, be sure to describe the extent, quality and uses of the affected resource.

The proposed rule would reduce atmospheric mercury emissions from major electric utilities. A reduction in atmospheric mercury emissions would have the potential to affect the entire surface area of the state, including all land and water resources, with a reduction in the deposition of atmospheric mercury. Mercury emissions released into the air are deposited back to the surface mainly through wet deposition (precipitation) and dry deposition (particulate matter). Since the deposition of mercury emissions is dependent on meteorological conditions and emission source parameters (i.e. stack heights, etc.) all land and water surfaces in the state would be potentially affected in a positive manner with a reduction in mercury deposition. This would include state water bodies impaired because of fish consumption advisories. A reduction in mercury deposition to land and water surfaces of the state would affect fish and wildlife in a positive manner with a reduction in the accumulation of mercury in fish and animal tissue. This would have the effect of reducing the risk to human health for that portion of the population that consumes fish from state water bodies.

B. Government, Industries, Organizations, Other parties

Specifically identify those units of government, industries, organizations, and other parties that would be affected by the proposal and explain how each would be affected.

Baseline Mercury Emissions

The rule proposes to establish a mercury emissions baseline for major electric utilities with actual emissions of mercury of 100 pounds or more per year on a system-wide basis. The emissions baseline for these affected major electric utilities would be determined from the average mercury content in coal and by recent coal usage. Affected sources would be required to submit a report to the Department by October 1, 2005 that includes an estimation of their uncontrolled mercury emissions. By January 1, 2007, the Department would provide written notification to sources of their baseline mercury emissions. Beginning January 1, 2008, sources would not be allowed to exceed their baseline emissions.

Major Electric Utility Emission Reductions

The proposed rule would require major electric utilities with baseline emissions of 100 pounds or more to reduce their emissions of mercury by 40% beginning January 1, 2010, and 80% beginning January 1, 2015, from baseline emissions. To indicate which utilities may be affected, historic emissions were estimated based on the three year average of fuel consumption (mmbtu) from 1999 through 2001 (2002 emissions data not yet available) and a correlation of US EPA mercury emission rates determined from the agency's information collection request for electric utilities. The results in Table 3 show that four electric utilities emit mercury above the 100 pounds per year threshold for a total of 2,386 pounds per year. This is equal to approximately 99% of the state's mercury emissions from electric utilities.

Table 3. Mercury Emissions from Electric Utilities (1999 – 2001 Average)

Utility	Facility	Mega Watts	Ave Mercury Emissions (lbs/yr)[a]	Emission Rate (lbs/tbtu)	Percent of Facility Emissions	Utility Mercury (lbs/yr)	Percent of Utility Emissions	Threshold Category
WEPCO	Pleasant Prairie[b]	1,233	945	9.4	72	1,306	54.1	***100 pounds or more per year.***
	Oak Creek	1,192	265	3.8	21			
	Port Washington[b]	320	72	4.8	6			
	Valley*	272	17	1.0	1			
	Milwaukee Cty[c]	11	7	5.0	0			
Alliant	Columbia[b]	1,024	371	4.5	57	653	27.1	
	Edgewater	780	200	3.7	31			
	Nelson Dewey[b]	200	71	5.3	11			
	Rock River	150	11	4.4	2			
WPSC	Weston	497	167	4.1	71	237	9.8	
	Pulliam	388	70	2.4	29			
DLP	Alma/JP Madget	523	151	8.5	79	191	8.0	
	Genoa	346	40	2.1	21			
MPU	Manitowoc[c]	63	11	2.9	100	11	0.5	***Less than 100 pounds per year.***
MGE	Blount Street[c]	143	7	1.3	100	7	0.3	
XCEL (NSP)	Bayfront[bc]	73	6	1.5	100	6	0.2	
Mid-American	Stoneman[c]	52	2	5.0	100	2	0.1	
Total		**7267**	**2,413**		**100**	**2,413**	**100**	

a Mercury emissions based on EPRI's/EPA 1999 ICR emission correlation and estimates with the unit's three year average fuel consumption.

b Individual unit or facility participated in Hg emissions testing for EPA 1999 ICR program.

c Based on 1998 – 2000 data.

Source: WI DNR Bureau of Air Management

V. ENVIRONMENTAL CONSEQUENCES

A. Impacts on Environment

Identify and briefly describe anticipated direct and indirect impacts on the physical and biological environment. Indicate substantial impacts that can not be avoided and irreversible or irretrievable commitments of resources that would result.

The proposed rule would reduce mercury air emissions and the deposition of atmospheric mercury to the environment and specifically, to water bodies. Reducing the deposition of mercury to the environment and specifically to water bodies will result over time, in lower concentrations of mercury in the tissue of fish. This will result in lower concentrations of mercury in wildlife that consume fish (i.e. loons, eagles, mink, otter, and osprey) and reduced risk to human health for that portion of the population that consumes fish.

Scientific research completed in 2000 by the University of Wisconsin – Madison on Little Rock Lake (Wisconsin), evaluated the short-term relationship between atmospheric mercury deposition and water chemistry. The study found a statistically significant decline for mercury both in bulk deposition and in lake water since 1995. The concentration of mercury in fish also declined during the same period. The research indicates that the lake is tightly coupled to its air shed with respect to mercury pollution. This suggests that remote lakes may be highly responsive to short term changes, either increases or decreases, in mercury deposition.

In October 2001, the Department received a grant from USEPA to develop a mercury-modeling system for Wisconsin and the Great Lakes region. When completed, the modeling system will include a comprehensive analysis of the emission, transport, transformation, and deposition of mercury (wet and dry) to water surfaces in the region. The Department's mercury-modeling system should be completed in 2004. In addition, the Department is cooperating with USEPA on the Devil's Lake, Wisconsin, TMDL (Total Maximum Daily Load) pilot project to study atmospheric deposition of mercury to the lake. The main purpose of the project is to assess local versus regional sources of atmospheric mercury and combine the air deposition modeling with water cycle modeling to determine the effects on the lake of reducing atmospheric mercury loading. The Devil's Lake pilot project should be completed by the end of 2003. When completed, both projects will provide a clearer picture of the potential impact of the proposed rule on the physical and biological environment.

A potential indirect impact on the environment may occur as a result of an increase in the amount of coal ash and slag collected by emissions control equipment having to be deposited in landfills instead of beneficially reused in other products such as cement. Based on industry reported data under Chapter NR 538, for 2000, 81% of the coal ash and slag generated in Wisconsin was beneficially reused resulting in a decrease in the amount of ash and slag that needed to be disposed of in a landfill. Most of the material generated was from coal fired electric utilities. Using control technologies such as carbon injection that rely on collecting mercury using a sorbent may result in higher concentrations of carbon in the ash may render the ash unsuitable for cement manufacture. Use of a wet scrubber with carbon injection may render the collected sludge unusable for gypsum manufacture. Resolving the issue of carbon (or other sorbents) in ash and sludge is possible with additional control technology (fabric filter) or may be possible through the discovery of new beneficial uses.

B. Economic Impacts

Identify and briefly describe anticipated direct and indirect economic impacts. Refer to the fiscal note for the discussion of costs to the Department and local governments. Address the costs and the impacts of those costs to individuals, industries or other affected groups as well as to local economies.

Direct Impacts – The direct economic impact and cost to affected groups was estimated using the cost for major electric utilities to install and operate a surrogate control technology to meet the proposed mercury reduction requirements (see proposed rule package for more detail on the Department's analysis). The surrogate technology selected by the Department is a combination of activated carbon injection and a fabric filter system. The estimated cost of installing activated carbon injection and a fabric filter system was then used to determine the potential increase in electricity rates for customers. This assumes the Wisconsin Public Service Commission would approve

the major electric utilities to include the cost of mercury emissions reductions (including a return on capital investment) as a part of customer electricity rates.

Using a combination of activated carbon and a fabric filter system as the surrogate control technology does not imply that it represents the only available option for major electric utilities to meet mercury reduction requirements. However, based on USEPA, NETL (National Energy Technology Lab), and EPRI (Electric Power Research Institute) reports, carbon injection with a fabric filter system represents the most practical and available technology for achieving significant mercury reductions. In addition to the surrogate control technology, there are a number of other options available to reduce mercury emissions from fossil fuel-fired boilers used to generate electricity that could be used to supplement or achieve a portion of the proposed rule reductions. These options include switching to other solid fuels (e.g. other coal, coke, biomass, etc.) to lower the mercury in fuel content or to enhance mercury removal properties. They also include modifying existing equipment to enhance removal efficiency, installation of additional control equipment and post combustion technologies (fabric filter alone, wet scrubbing equipment), fuel switching to natural gas, and equipment upgrades to improve plant efficiency. Plant re-powering or boiler replacement with new coal or gas capacity is an option that could be used to reduce mercury emissions. However, this choice is usually based on more critical considerations such as the advanced age of a particular unit.

The cost of applying the surrogate technology included the cost of equipment purchase and installation, purchase of activated carbon, annual operation and maintenance, and fly ash disposal and lost revenue for ash that can not be reused. For all larger generation units (greater than 200 mega-watts) the control approach is activated carbon injection and a fabric filter system installed downstream of the existing pollution control equipment. This provides higher mercury reductions and greatly reduces the potential contamination of fly ash generated by these units that in general has high reuse value (e.g. cement additive). For most small generating units (less than 200 mega-watts), activated carbon injection only in front of the existing particulate control equipment was applied. This is significantly less costly than installing a fabric filter system for smaller units that produce fly ash that generally has low re-use value and is disposed of in a landfill. In addition to the expected cost based on application of the surrogate control technology, a high cost is estimated (using the same surrogate technology) that considers the scenario of all units being affected by installation difficulties and requiring extra measures to achieve required mercury reductions. This provides a range of costs for the surrogate technology.

The estimated costs of meeting the proposed mercury reduction levels of 40% and 80% based on the minimum required installations of surrogate control technology (as described above) are listed in Table 4. The estimated first phase (40%) annual cost for the four major utilities is $28 - 33 million. The added cost if passed on to the consumer is estimated to be between 0.06 – 0.07 cents per kilowatt-hour. For an assumed average household consuming 770 kilowatt-hour per month, this results in an additional cost of $6 - 7 per year. The second phase (80%) results in an annual cost to the major electric utilities of $87 - 104 million. This is an added consumer cost of 0.19 – 0.23 cents per kilowatt-hour or for the average household, $18 - 21 per year.

Table 4.
Estimated Mercury Reduction Costs Using Surrogate Technology

Utility Mercury Emission Reduction	Annual Utility Sector Cost ($M)	Cents/kWh (System-wide Average)	Annual House Hold Cost ($/year)*	Estimated Mercury Reduction (pounds/year)**
40%	28 - 33	0.06 – 0.07	6 – 7	1,096
80%	87 – 104	0.19 – 0.23	18 – 21	2,191

** Assumed average household consumption of 770 kWh per month.*
*** Reductions based on 1999-2001 average mercury in fuel baseline of 2739 pounds.*
Source: Wisconsin Department of Natural Resources, Bureau of Air Management

Indirect Impacts – The proposed rule would reduce atmospheric mercury emissions and subsequently reduce mercury deposition to the environment. This would reduce the amount of mercury entering the water bodies and over time, reduce the amount of mercury in fish and wildlife. The department believes that with a reduction of

mercury deposition, there would be an eventual reduction in the number of water bodies with fish consumption advisories. Since fish consumption advisories can be viewed as having a potential negative impact on the State's tourism industry, reducing mercury deposition and subsequently the number of fish consumption advisories would have a positive economic impact on the State's tourism industry.

C. Social and Cultural Impacts

As appropriate, identify and briefly describe direct and indirect impacts on social or cultural environments, the regional availability of energy or other features not previously addressed.

With its abundant rivers and lakes, fishing in Wisconsin is a very popular social and cultural activity. The state sells approximately 1 million resident and 0.5 million non-resident licenses each year. The total number of people who fish in the state on an annual basis is over 1.8 million (including those not required to obtain a license). Eating the fish they catch is also popular for Wisconsin anglers. Mean fish consumption in the United States has been estimated to be approximately 36 meals of fish per year. However, in Wisconsin, license anglers were found to have a mean consumption rate of 42 meals of fish per year. In addition, the state has 11 Indian tribes and a Hmong community that because of their culture, consume greater amounts of fish. Members of Indian tribes average 75 meals of fish per year, an amount that is more than double the national average.

The proposed rule seeks to reduce mercury air emissions from major electric utilities. This reduction of mercury air emissions would result in a reduction of the deposition of atmospheric mercury to water bodies in the state and ultimately a reduction of mercury in fish tissue. A reduction of mercury in fish would have a beneficial effect on fishing as an activity in the state. Therefore, the proposed rule would have a strong positive social and cultural impact to the state.

The proposed rule is not expected to affect the regional availability of energy because it includes a provision that major electric utilities may request a variance from phased emission reduction requirements. Variance conditions include: an emergency electrical supply in Wisconsin or elsewhere, a major fuel disruption, an unanticipated disruption in the operation of a boiler unit, the implementation of a pollution reduction project, or any other event beyond the control of the major electric utility.

VI. ALTERNATIVES AND THEIR IMPACTS

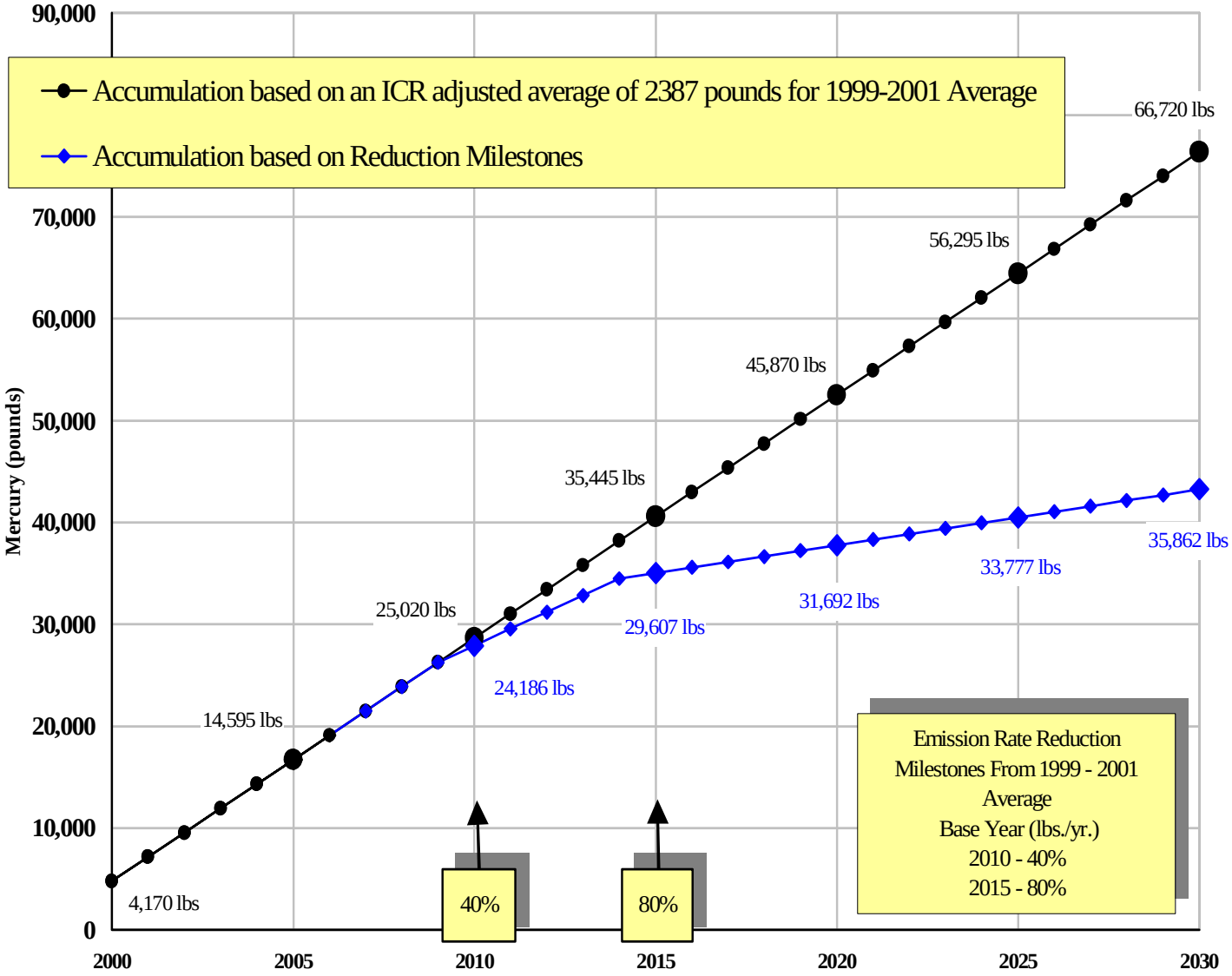
A. No – Action Alternative

Briefly describe the impacts of not implementing the proposal.

The proposed rule would reduce mercury emissions from major electric utilities. The objective of the proposed rule is to reduce mercury air deposition to the environment and subsequently reduce mercury levels in fish and wildlife. Not implementing the proposal would mean that under current state regulations, mercury emissions in the state may not be reduced and could potentially increase over time. Fossil fuel-fired boilers used to generate electricity would not be required to reduce their emissions of mercury to the air and could actually increase their emissions of mercury. Statewide mercury emissions may also increase due to the addition of new or modified sources.

Current state regulations allow existing major electric utilities to continue emitting mercury to the air at levels at least equal to past emissions. If not regulated, an unknown portion of these mercury emissions would continue to deposit onto the state's land and water surface resulting in continual contamination of the state's environment. At the present time, nearly all water bodies in the state have some type of a fish consumption advisory. Since mercury does not easily break down and actually accumulates in the environment including fish and wildlife, the total pounds of mercury in the environment increases every year. Based on 1999 – 2001 average emissions of 2387 pounds per year, by the year 2030, 66,720 pounds of mercury will have been released by fossil fuel-fired boilers used to generate electricity in Wisconsin (see chart A).

CHART A:
Projected Mercury Accumulation In The Environment From Major Electric Utility Plants Located In Wisconsin



Source: Wisconsin Department of Natural Resources, Bureau of Air Management.

Note: Projected loading to the environment does not imply that all of the mercury emissions from Wisconsin's sources deposits onto Wisconsin's land and water surfaces. It also does not imply that all of the mercury that deposits to the environment becomes methylated and accumulates in the tissue of fish.

Continual contamination of the state's environment would mean that the problem of fish consumption advisories would most likely continue and may actually get worse as advisories for certain types and sizes of fish are expanded for individual water bodies. This would increase the risk to human health for that portion of the population that consumes fish. A continued increase in the level of fish consumption advisories in the state as a result of continued contamination of the state's water bodies could potentially have a negative impact on the state due to a reduction of recreation and tourism activities.

B. Major Changes

Identify and briefly describe major changes to the proposal that would satisfy known or obvious concerns of interested parties, and describe the impacts.

The proposed rule would require mercury emission reductions from major electric utilities. The following are potential concerns with the proposed rule.

- *80% Reduction* - The proposed rule would require that major electric utilities achieve a 80% reduction of mercury air emissions from baseline emissions by January 1, 2015. Two potential concerns may exist because of the 80% reduction requirement. One is that major electric utilities would not be able to meet the 80% reduction by 2015 because of cost and/or the unavailability of technically available emissions control technology. The second potential concern is that an 80% reduction is not adequate to protect the environment. Changing the 80% reduction requirement to a lower percentage may allow for utility sources to achieve the required mercury air emission requirements of the proposed rule in a less costly manner. Technology to control a lower reduction requirement may also be more readily available. Increasing the percentage reduction to greater than 80% may provide more protection to the environment but may not be achievable or be at a higher cost. The proposed rule does require the Department to periodically evaluate reduction requirements taking into consideration technology developments.

- *Volunteer Program* – The proposed rule would include mandatory mercury emission reductions from major electric utilities. Requiring major electric utilities to comply with a state only rule may be a concern since a portion of the mercury emissions deposited to Wisconsin are from other states. It may be viewed that sources emitting air mercury emissions would be placed at a competitive disadvantage compared to the same type of sources in neighboring states. Changing the rule to a volunteer program could mitigate this concern. However, it is unknown if a volunteer program for reducing mercury air emissions would be successful and real reductions of atmospheric mercury emissions would occur in the state. Based on Department experience with ozone voluntary programs and climate change initiatives, it is likely that a volunteer program would be less effective.

- *Federal Program* – In December 2000, USEPA made a determination under the Clean Air Act that mercury air emissions from electric steam generating units need to be reduced because of the threat of such emissions to human health. The agency is now required to propose regulations by December 15, 2003 and issue final rules by December 15, 2004. Affected sources would have to be in compliance by December 15, 2007. It is unknown what mercury reductions will be contained in the federal rule. Therefore, a concern may exist that emission reductions achieved by Wisconsin major electric utilities under the state rule may not be credited under the future federal rule. This may cause confusion regarding reductions and schedules that sources would need to meet leading to potential compliance issues. A provision exists in the proposed rule requiring the Department to evaluate the effects of pending federal regulations within six months of the promulgation date of the rule. However, a certain level of uncertainty may still exist for sources required to reduce their mercury emission since it would still not be known how future federal air mercury regulations would affect the proposed state rule.

- *Compliance* – The proposed rule would allow major electric utilities to achieve compliance by averaging emission reductions across their entire statewide system. It would also allow major electric utilities to enter into agreements with another major utility for the use of excess reductions to meet compliance with emission reduction requirements. There may be a concern that trading emission credits could potentially allow certain individual electric utility plants to maintain their current level of mercury emissions simply through facility wide averaging or by trading for needed credits. This may create a situation where mercury emissions are not reduced in a localized portion of the state. These local mercury emissions may continue to contaminate local water bodies. Removing the facility-wide averaging and trading provisions of the proposed rule would alleviate these concerns. However, without the averaging and trading provisions in the rule, sources required to reduce emissions may have a decreased level of flexibility for achieving reductions and an increase in financial costs. A provision does exist in the proposed rule that requires the Department to assess the impacts of trading on local water quality impacts as a part of its evaluation report.

C. Other Alternatives

Describe and evaluate other reasonable alternatives and explain why they were rejected. As appropriate, address legislative alternatives, or techniques used by other states or other agencies to accomplish the objectives stated in "III-Proposed Description" above.

The proposed rule requires major electric utilities to reduce their air emissions of mercury. The objective of reducing mercury emissions in Wisconsin is to reduce mercury deposition to the environment. An alternative to the proposed rule could be to achieve mercury emission reductions through negotiated voluntary cooperative agreements established with the major electric utilities such as the Cooperative Environmental Agreement between Wisconsin Electric and the Department. This alternative would be more similar to a volunteer program and may allow for maximum flexibility in establishing the reduction goals and schedules for individual utilities. It was rejected because the Department believes that the level of participation by utilities emitting air emissions of mercury would be limited. This would result in overall air mercury reductions that are much less than the proposed rule.

The proposed rule presented to the Natural Resources Board in June 2001 could be considered as an alternative because it included reduction requirements and compliance schedule that are different than the proposed rule assessed in this document (see June 2001 Environmental Assessment). The June 2001 proposed rule was subsequently revised based on public comments received by the Department and the recommendations of the Citizen Advisory Committee and Technical Advisory Group. However, because of the uncertainties in assessing the environmental impacts to the state of reducing mercury emissions from Wisconsin utility sources, the environmental conclusions for the June 2001 Rule alternative are the same as for the proposed rule assessed in this document.

VII. EIS RECOMMENDATION

A. State the EIS recommendation and explain why this rule proposal is or is not a major and significant action under s. 1.11, Wis. Stats., in terms of All of the following factors.

Based on the analysis of Proposed Chapter NR 446, Wis. Admin. Code, pertaining to Control of Atmospheric Deposition of Mercury Emissions, it is determined that under s. 1.11, Wis. Stats., the proposed rule is not a major state action that would significantly affect the quality of the human environment and therefore, an EIS (Environmental Impact Statement) is not required.

1. The extent of short-term and long-term environmental effects including secondary effects: particularly to geographically scarce resources such as historic or cultural resources, scenic and recreational resources, prime farmland, threatened or endangered species or ecologically critical areas.

The rule proposal would reduce atmospheric emissions of mercury from major electric utilities. The Department expects that this will result in reduced atmospheric mercury to the environment including land and water resources and ultimately fish and wildlife. The reduction of mercury to the State's water bodies with the reduction of fish consumption advisories would produce a positive effect on recreation. There would also be a positive effect on threatened and endangered species that consume fish, and ecologically critical areas that are currently contaminated with mercury. There are no expected short-term or long-term negative effects to any geographically scarce resources including historic, cultural, or scenic resources, or prime farmland.

2. The extent of cumulative effects of related actions or other activities occurring locally that can be reasonably anticipated, and that would compound impacts.

There are no known locally occurring related actions or other activities that would compound the impacts of the proposed rule. There is a federal activity to regulate mercury emissions from coal and oil (fossil fuels) fired utility boilers as a result of USEPA's determination published in December 2000. USEPA is on a schedule to propose regulations by December 15, 2003 and promulgate rules by December 15, 2004. It is not known if and how the federal regulations would affect the impacts of the proposed rule.

3. *The degree of risk or uncertainty in predicting environmental impacts or effectively controlling potential environmental impacts including those relating to public health or safety.*

There is some uncertainty regarding the environmental impacts of the proposed rule. First, it is not completely known how many or exactly which water bodies in the state would show a reduction in mercury levels with a corresponding reduction of fish consumption advisories as a result of reducing mercury air emissions from fossil fuel-fired boilers used to generate electricity located in Wisconsin. Second, it is not completely known how many years would be required for any particular water body in the state to fully recover from mercury contamination as a result of reducing mercury air emissions from fossil fuel-fired boilers located in the state. These uncertainties are based on the lack of a complete understanding of the atmospheric transport and deposition of mercury emissions from Wisconsin sources. However, since any reduction of mercury to water bodies would be a positive environmental effect, the degree of risk or uncertainty of the proposed rule is not deemed a significant negative impact to public health and safety.

4. *The degree to which the action may establish a precedent for future actions or foreclose future options. This includes consistency with plans or policy of local, state or federal government such as Department wetland policy or local zoning.*

There is some potential that the proposed rule will initiate and support future actions by other states to promulgate rules to regulate mercury air emissions from fossil fuel-fired boilers used to generate electricity and other sources of mercury. The proposed rule may also assist in development of federal rules to regulate mercury emissions from coal and oil-fired utility boilers. USEPA is under a schedule to propose rules regulating mercury emissions from utility boilers by 2003 and promulgate final regulations by 2004. Regulations to reduce mercury emissions from other states either through federal rules or rules by other states would be beneficial to Wisconsin since a portion of mercury deposited to the state is from sources located outside of Wisconsin. Therefore, any precedent established by the proposed rule would be considered a positive action.

5. *The degree of controversy over the proposal's effects on the quality of the human environment.*

There is some degree of controversy over the uncertainty of the proposed rule on the quality of the human environment. This controversy relates to the overall impacts that would occur to water bodies in the state as a result of reductions of mercury air emissions from fossil fuel-fired boilers used to generate electricity located in Wisconsin. Opponents of the proposed rule may argue that it will have no significant impact on reducing mercury to the state's water bodies and eliminating fish consumption advisories. Others may argue that it doesn't reduce emissions soon enough or require reductions from all sources of mercury. These arguments may be based on the lack of a complete understanding by the scientific community on the contribution that Wisconsin major electric utilities and other major stationary sources have on the deposition of mercury to the state. Mercury modeling sponsored by the Wisconsin Utilities Association indicates that mercury deposition would decline very little even if emissions from the state's power plants were completely eliminated. However, the Department believes that based on the bioaccumulative properties of mercury, and the current level of control technology, the proposed rule represents a balanced approach to reducing mercury emissions to the air. Reducing mercury from major electric utilities in the state will, over time, reduce mercury to the state's environment. In addition, the proposed rule contains provisions for periodic assessments of the rule and allows for adjustments in the regulations. Since the anticipated effect of reducing mercury to the State's water bodies would be a positive effect on the human environment, and there are no known negative environmental effects regarding mercury emission reductions, the controversy is not considered to be significant to the quality of the human environment.

VIII. ENVIRONMENTAL ANALYSIS CONTACTS

List agencies, groups, and individuals contacted regarding this analysis.

Contact	WI DNR Program	Information Provided
1. James Amrhein	Fisheries Mgt. & Habitat	Fish Advisories, Recreation/Tourism, Wildlife

2.	Thomas Karman	Air Management	Economic Costs, Emissions Inventory
3.	Douglas Knauer	Integrated Science Services	Mercury Transport and Deposition
4.	Andrew Stewart	Air Management	Emissions Inventory
5.	Jon Heinrich	Air Management	Proposed Rule
6.	Caroline Garber	Air Management	General Review
7.	John Shenot	Cooperative Env. Assistance	General Review
8.	Paul Koziar	Waste Management	General Review
9.	Tom Steidl	Legal Services	Legal Review
10.	James Pardee	Integrated Sciences Services	Analysis Review

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